North American Drought Monitor - July 2007

CANADA: Extreme heat and below-average precipitation were typical for most of the country in July. As a result, crops across the Prairies showed signs of heat stress, and dugouts and soil moisture reserves began to dry up. Because of the July conditions, an emerging drought condition appeared across southern Alberta and Saskatchewan. Dry areas in the west also included the central interior of British Columbia, northeastern Alberta, and northwestern Saskatchewan. In the east, higher-than-normal temperatures and limited rainfall saw most of southern Ontario and the Lac-St Jean region north of Québec City decline further. Low Water Advisories have been issued encouraging voluntary water rationing in southern Ontario and crops were also beginning to show signs of heat stress.

British Columbia: After a cool, rainy spring, temperatures became more seasonable and several communities even hit record highs. All High Stream Flow Advisories have been lifted but most streams continued to have above normal flows. The exception occurs in the central interior where stream flows in the Nicola and Moyie Rivers and inflows to Okanagan Lake were between 55 and 67% of normal for the April-to-July period. Thus, the area has been classified as abnormally dry (D0). Although stream flow levels have been low for this region, no water supply concerns exist at this time. For the D0-D3 area in the southeast, growing-season rainfall ranged from "Low" (20-40% of the historical normal) to "Extremely Low" (10-20% of the historical normal) over the last four months.

Alberta: While the July heat wave in Alberta was needed for advancing development of this spring's late-seeded crops, heat stress now has quickly threatened to lower yield expectations in some areas. Despite the late start and excessive heat, the majority of crops across the province are mostly in good condition because of high humidity. An exception is the extreme south (south of Lethbridge), where less than 10mm of rain has fallen in the last 30 days, and numerous forest fires have been reported. As a result of the below-average precipitation, low soil moisture reserves, and extreme fire risk, this area has been classified between a D0 and a D2. Another area of concern remains in the extreme northeast where less than 70% of normal precipitation has been reported over the last three months. This area has been given a D0 and D1 designation. As for the northern Peace parkland area in the northwest, previously identified as abnormally dry, 50-60mm of rainfall has been received over the last month.

Saskatchewan: Recent hot, dry weather has lowered crop yield estimates to about average. Topsoil moisture has been deteriorating in southern areas, with less than 40% of reporters rating topsoil moisture as adequate. In the southwest, pastures were in poor shape or were drying up because less than 25mm of rain was reported since July 1. All these factors have resulted in a D0-D1 drought classification for this region. Rainfall has occurred from localized convective storms and has been variable, so crops have started to show signs of drought stress in parts of the province.

Manitoba: Like much of the Prairies, hot weather prevailed across Manitoba, along with variable rainfall. Generally, crops have developed well but have been experiencing heat

stress, particularly in southwest Manitoba where moisture is needed to allow development to finish. In this area, dugout levels have dropped to 50-60% of capacity. This contrasts to central parts of the province where some fields are still waterlogged.

Ontario: For much of Ontario, moisture stress impacts on crops have been quite variable because localized thunderstorms have provided rain to some areas. With higher-than-normal temperatures throughout much of July, corn and field crops planted earlier in the growing season in better-drained soils have developed well, but later-planted crops and ones in poorer soils have been affected by heat stress and lack of moisture. Because of the lack of rainfall, stream flows in southern Ontario have been below average this summer. For the area classified as a D0-D2, growing season rainfall ranged from "Low" (20-40% of the historical normal) to "Record Dry" (10% of the historical normal) over the last four months. Also within this area, The Ministry of Natural Resources has issued Level I Low Water Advisories for most counties (10% voluntary reduction in water use). A Level II Low Water Advisory (20% voluntary reduction in water use) has been issued for the Grand River watershed in the Long Point Region Conservation Authority. Northwest Ontario remains as a D0-D1 classification, as some stream flows have been at less than 70% of normal and resulting in a Level 1 Low Water Advisory in the Fort Frances and Lakehead areas.

Quebec: Growing conditions have generally been good and crops have developed well. Insect infestations, particularly the soybean aphid and armyworms, have been causing some concern and are being monitored. The Lac-St. Jean area, north of Quebec City, has still been very dry and thus remains classified in a D0-D1 drought condition.

Atlantic Canada: Although the region has experienced variable precipitation and slightly above-average temperatures, generally crops have developed well.

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UNITED STATES: During July, drought generally developed or intensified across the upper Midwest and northern portions of the Rockies and High Plains. Areas that were largely drought-free in early July, but were experiencing moderate to severe drought (D1

to D2) by month's end, included large sections of Minnesota, South Dakota, Idaho, and western portions of Montana and Iowa. Drought also continued to expand across most areas west of the Rockies, due to hot weather in the wake of a disappointing winter wet season. One exception was the Southwest, where the onset of monsoon showers provided local drought relief. Western drought remained most serious across southern California and western Arizona, where extreme drought (D3) persisted. Farther east, patchy drought developed in the eastern Corn Belt and Mid-Atlantic States, while drought coverage shrank slightly in the Southeast. Drought was erased from the lower Mississippi Valley, but a core region of exceptional drought (D4) persisted through the end of July in an area centered on northern Alabama.

Agricultural Highlights: Wildfires exploded across the Great Basin and the Northwest during July, charring 3.2 million acres (1.3 million hectares) of vegetation and nearly tripling the nation's year-to-date burned area (from 1.9 to 5.1 million acres [from 0.8 to 2.1 million hectares]). Other heat- and drought-related Western woes included heavy irrigation demands, diminishing water supplies, and stress on rain-fed summer crops. However, the July onset of the summer rainy season provided local drought relief from the Four Corners States into Wyoming. Farther east, mostly dry weather and record-setting heat on the northern Plains stressed immature summer crops but promoted small grain maturation and harvesting. Farther east, diminishing moisture reserves increased stress on many Midwestern summer crops, despite near- to below-normal temperatures. Both the western and eastern Corn Belt remained unfavorably dry, although beneficial showers dampened much of the latter region during the second half of July. In contrast, monthly rainfall totaled less than one inch (less than 25mm) in portions of the upper Midwest, including northwestern Iowa, southwestern Minnesota, and much of South Dakota. Elsewhere, unusually wet weather across the South was mostly confined to parts of Florida and areas from the lower Mississippi Valley. Drought relief was most significant in the lower Mississippi Valley, while most of the remainder of Southeast experienced some short-term improvement but retained long-term rainfall deficits.

By August 5, the U.S. Department of Agriculture reported the following portions of the nation's crops were rated in good to excellent condition: rice, 73%, spring wheat, 69%; sorghum, 68%; corn and soybeans, both 56%; and cotton and peanuts, both 54%. However, there were some serious regional- and state-level concerns related to drought: For example, spring wheat was rated 32% very poor to poor in Montana and 29% very poor to poor in Washington due to hot, dry weather during the latter portion of the growing season. Corn was rated at least one-third very poor to poor in the following major production states: Michigan (60%), Tennessee (50%), Minnesota (44%), and North Carolina (40%). Similarly, soybeans were rated at least one-third very poor to poor in Michigan (52%) and Tennessee (34%). Cotton was rated 48% very poor to poor in Alabama and 38% in Virginia. On August 5, range and pastureland was rated at least 40% very poor to poor in the following 21 states: California (98%), Nevada (86%), Michigan (78%), Minnesota (78%), Maryland (72%), Pennsylvania (72%), Virginia (65%), Indiana (64%), Tennessee (63%), Wisconsin (60%), Ohio (59%), North Carolina (57%), Alabama (52%), Delaware (51%), Arizona (50%), Idaho (50%), Kentucky (50%), Georgia (43%), Utah (43%), Oregon (42%), and Missouri (41%).

Historical Perspective: July temperatures averaged 74.3 degrees F (23.5 degrees C) across the contiguous United States, according to preliminary information provided by the National Climatic Data Center. That value was 1.4 degrees F (0.8 degrees C) above the 20th-century mean and represented the 15th-highest reading during the 113-year period of record. State rankings ranged from the fourth-coolest July in Texas to the hottest July on record in Idaho, Montana, and Wyoming. Meanwhile, precipitation averaged 2.85 inches (72 mm), or 103% of the 1901-2000 mean, resulting in the 46th-wettest July since 1895. It was the third-wettest July in Texas and Louisiana, but top-ten dryness was reported in South Dakota (fourth-driest July), Minnesota (seventh driest), Missouri (tenth driest), and North Carolina (tenth driest).

MEXICO: At national level, precipitation during July averaged 149.7mm (5.89 inches), which was 8% above the climatological average of 138.2mm (5.44 inches). The National Meteorological Service (SMN) ranked July 2007 as the 22nd-wettest such month since 1941. The national temperature averaged 24.4 degrees C (76 degrees F), above the normal monthly temperature is of 23.3 degrees C (74 degrees F).

Precipitation that occurred during July in Mexico was associated with the passage of 11 tropical waves, as well as transitory low-pressure systems. The precipitation was distributed as follows: rainfall was 40 to 90% of average in southeastern Mexico and the Yucatan Peninsula, while in northern Mexico rainfall was 306% of average in Coahuila, 129% in Tamaulipas, 99% in Guanajuato, and 94% in Nuevo Leon.

The most important changes in the distribution of the drought in Mexico included reductions in Central states, such as Morelos and Puebla, where a pocket of severe drought (D2) was reduced to abnormal dryness (D0). Farther north and east, abnormally dry conditions disappeared from parts of Tamaulipas, Oaxaca, and Chiapas.

In the rest of the country, few changes in the distribution of drought were observed. Standing out were the extreme to exceptional (D3 to D4) drought conditions in northern portions of Sonora and Baja California, where little rain fell. In addition, the coverage of moderate to severe drought (D1 to D2) expanded in northwestern Mexico. Rain did help to improve conditions in central Sonora from severe to moderate drought (D2 to D1), but varying levels of dryness and drought persisted in western parts of the country.

In spite of the passage of tropical waves and the proximity of Tropical Storm Dalila in the Pacific, extreme drought (D3) continued in parts of Michoacán, Jalisco and Colima.

In the Gulf of Mexico states, conditions of moderate drought (D1) were expanded most significantly in Veracruz. Severe drought (D2) was introduced in portions of Campeche, Quintana Roo and Chiapas; an area of extreme drought (D3) was placed in Tabasco. Finally, moderate to severe drought (D1 to D2) improved to abnormally dry conditions (D0) in the northern section of the Yucatan Peninsula.

The official agency CONAFOR reported that during the last week of the month of July, four forest fires (wildfires) occurred in Baja California, affecting a total of 5.50ha (13.6 acres). The affected vegetation included grass, shrubs, and scrub.

The National Water Commission (CONAGUA) reported a slight increase in the levels of the dams during the month of July. The northwest region increased from 44 to 52% of capacity, the northeast from 43 to 49%, the center from 54 to 66%, and the south from 34 to 51%. In contrast, the north-central region registered a reduction from 62 to 60% of capacity.